REMARKS

Claims 1-48 are pending. Claims 1, 3, 7, 8, 20, 21, 23, and 24 have been amended and new claims 31-48 have been added to provide an additional measure of protection for the invention. The amendment to the original claims removes the word "forward" before "body bias" so as to unnecessarily limit the scope of the claims, as the claimed invention applies not only to providing forward body bias but also other types of body bias including reverse body bias. In addition, Figure 3 has been amended to recite reference numerals disclosed on page 6 of the specification. A replacement sheet has been provided for Figure 3.

Reconsideration of the application is respectfully requested for the following reasons.

In the Office Action, the Examiner rejected claims 1-30 under 35 U.S.C. § 102(b) for being anticipated by the Tobita patent. Applicants traverse this rejection for the following reasons.

Claim 1 recites a bias generator comprising a first node and a single-stage source-follower. The first node receives a supply voltage, and the source-follower "generates body bias for a local functional block based on a variation in the supply voltage received from the first node." The Tobita patent does not disclose a source-follower of this type.

The Tobita patent discloses a circuit for generating a reference voltage. The circuit includes a node 1 for receiving a supply voltage V_{cc} and a pair of transistors Q_1 and Q_2. The transistors are switched based on voltages V_3 and V_5 which are respectively input into the gates of the transistors. In operation, a node 2 between the transistors generates an output signal which serves as a reference voltage for an external circuit.

Amendment to the Drawings

The attachments to this paper include an annotated sheet showing changes made to Figure 3 in red ink, as well as a replacement sheet for this figure incorporating the changes.

Attachments: Annotated Sheet of Figures 3
Replacement Sheet for Figure 3

The Tobita circuit is different from claim 1 in at least two respects.

First, claim 1 recites that its source-follower stage generates body bias for a local functional block. The Tobita circuit does not generate a body bias signal, but rather generates a reference voltage for an external circuit. As shown, for example, in Figure 2 of Applicants drawings, a body bias signal is very different from a reference voltage. In fact, the Figure 2 embodiment shows that the reference and body bias signals are different signals input into a local functional block. The Tobita patent does not disclose that the voltage at output node 2 is a body bias voltage as required by claim 1.

Second, claim 1 recites that the source-follower stage generates body bias for a local functional block "based on a variation in the supply voltage received from the first node." That is, the source-follower of the claimed invention generates body bias based on the supply voltage, and in fact in some embodiments the body bias follows variations in the supply voltage. The Tobita patent does not disclose that its output voltage at node 2 is based on a variation in the supply voltage V_{cc}. On the contrary, Tobita expressly teaches away these features of the invention when it discloses that the output voltage V_0 at node 2 has no dependency on supply voltage V_{cc} applied to our supply node 1. See column 7, lines 47-51, and also claim 1 of the Tobita patent which recites a voltage generating means that generates a constant reference voltage with no dependency upon the voltage at said first potential node to an output node.

The Tobita patent, therefore, not only does not disclose the features recited in claim 1, it expressly teaches away from these features. For at least these reasons, it is respectfully submitted

that the Tobita patent can neither anticipate nor render obvious claim 1 or any of its dependent claims.

Claim 9 recites a circuit comprising a central bias generator and a local bias generator. The central bias generator generates a first bias voltage, and a local bias generator includes a first node for receiving a supply voltage and a source-follower to convert the first bias voltage into a second bias voltage based on a variation in the supply voltage received from the first node. The Tobita patent does not disclose a circuit of this type.

Specifically, Tobita does not disclose a central bias generator which generates a fist bias voltage. Rather, Tobita merely discloses that a supply voltage V_{ccc} is input into a reference voltage generating circuit. Furthermore, Tobita does not disclose a source-follower which converts the first bias voltage into a second bias voltage based on a variation in the supply voltage received from the first node. Put differently, none of the output signals of Tobita are bias voltages. Moreover, Tobita expressly discloses that its output node voltage has no dependency and therefore is not based on any variation in supply voltage V_{cc}.

Because the Tobita patent does not disclose all the features of claim 9, it is respectfully submitted that Tobita cannot anticipate this claim or any of its dependent claims.

Claims 10-19 further recite features relating to the generation bias voltages (e.g., forward body bias) for a local functional block. The Tobita patent does not disclose generating bias signals of any type, but merely discloses generating a reference voltage which is clearly different from a bias voltage as Figure 2 of Applicants' drawings makes clearly evident. It is therefore

respectfully submitted that claims 10-19 are allowable, not only by virtue of their dependency from claim 9 but also based on the features separately recited therein.

Claim 20 recites a method comprising receiving a supply voltage of a local functional block and then generating forward body bias for the local functional block from a single stage source-follower based on a variation in the supply voltage. The Tobita patent does not disclose these features.

First, claim 20 recites that the supply voltage derives from a local functional block, which is the same block being supplied the body bias. The Tobita patent discloses inputting a supply voltage V_{cc} into its reference voltage generating circuit, however Tobita does not disclose that output voltage from node 2 is input into the same circuit which generates supply voltage V_{cc} as required by claim 20.

Moreover, as previously discussed the output node voltage does not constitute "body bias," nor is this output signal generated based on a variation in the supply voltage as also recited in claim 20. On the contrary, Tobita expressly teaches away from these features by reciting that the output voltage at node 2 no dependency on the supply voltage V_{cc}. See once again column 7, lines 47-51.

Based on these differences, it is respectfully submitted that claim 20 is allowable over the Tobita patent.

Claims 21-24 are allowable, not only based on their dependency from claim 20 but also based on the converting steps recited in these claims which involve converting a first bias voltage into a second bias voltage based on the supply voltage variation. The Tobita patent not only fails

to disclose generating bias voltages (it only discloses generating a reference voltage), it does not disclose performing a bias voltage conversion based on any variation of V_{cc}.

Claim 25 recites a local bias generator having features similar to those recited in claim 9. Accordingly, it is submitted that claim 25 and its dependent claims are allowable over Tobita.

New claims 31-48 have been added to the application.

Claim 31 recites that the supply voltage "is a supply voltage of the local functional block." The Tobita does not disclose these features. Rather, Tobita merely discloses that a supply voltage is input into its reference voltage generating circuit, however Tobita does not disclose any relationship between the supply voltage and any circuit which might receive the output voltage from node 2.

Claim 32 recites that the source-follower adjusts the body bias to trap variations in the supply voltage. Tobita does not disclose these features and in fact teaches away from these features by expressly indicating that output voltage from node 2 has no dependency on V_{cc}.

Claim 33 recites that the "source-follower continuously adjusts the body bias to track variations in the supply voltage." The Tobita patent does not disclose these features.

Claim 34 recites that the "source-follower automatically shifts a level of the body bias to follow changes in the supply voltage of the local functional block." The Tobita patent clearly does not disclose these features.

Claim 35 recites that the "source-follower shifts the level of the body bias based on the difference between the supply voltage and reference voltage." (See pages 6-8 of the specification for support.) The Tobita patent does not disclose these features.

Claim 36 recites that the "first and second transistors have a same channel length and a same channel width." The Tobita patent does not disclose these features.

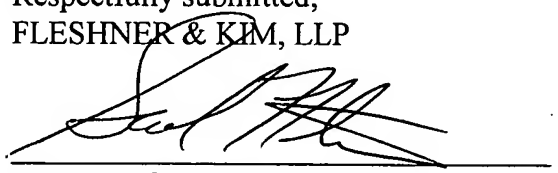
Claim 37 recites that "the fist and second transistors are both operated in saturation." The Tobita patent does not disclose these features in combination with the features of claim 36.

Claim 38-48 recite features similar to those discussed above but depending from independent claims 9 and 20.

In view of the foregoing amendments and remarks, it is respectfully submitted that this application is in condition for allowance. Favorable consideration and prompt allowance are earnestly solicited.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this, concurrent and future replies, including extension of time fees, to Deposit Account 16-0607 and please credit any excess fees to such deposit account.

Respectfully submitted,
FLESHNER & KIM, LLP



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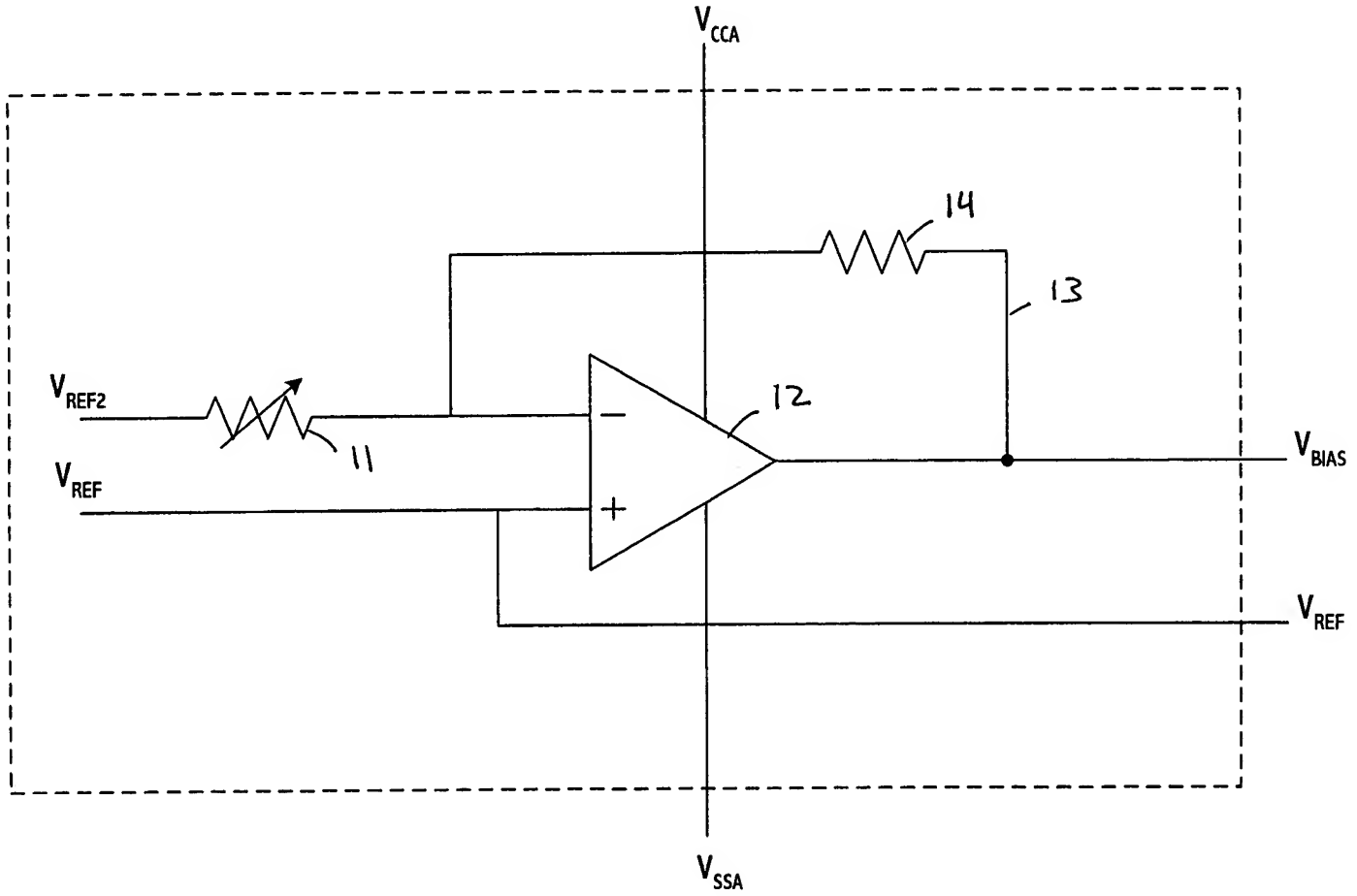

FIG. 3